***Chapter 21: Developing Concepts of data analysis (p.441-447)***

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| **Representative TN State Curriculum Standards**  Grade 4  Standard 5 – Data, Probability and Statistic  GLE 0406.5.1 Collect, record, arrange, present, and interpret data using tables and various representations.  Checks for Understanding (Formative/Summative Assessment):  0406.5.1 Create and label appropriate scales for graphs.  0406.5.2 Evaluate how well various representations show the collected data.  0406.5.4 Develop and use stem-and-leaf plots.  State Performance Indicators:  SPI 0406.5.1 Depict data using various representations (e.g., tables, pictographs, line graphs, bar graphs)  Grade 3  Standard 5 – Data, Probability and Statistic  GLE 0306.5.1 Organize, display, and analyze data using various representations to solve problems.  Checks for Understanding (Formative/Summative Assessment):  0306.5.1 Collect and organize data using observations, surveys, and experiments.  0306.5.2 Construct a frequency table, bar graph, pictograph, or line plot of collected data.  0306.5.3 Compare and interpret different representations of the same data.  0306.5.4 Solve problems using data from frequency tables, bar graphs, pictographs, or line plots.  State Performance Indicators:  SPI 0306.5.1 Interpret a frequency table, bar graph, pictograph, or line plot. | |
|  | Time: 5 Minutes  Teacher will read the titles of the graphs and show them to the class. Students will then be asked to tell what kind of graph is being used.  Need:   * Book   Activity:   * Question students about the different types of charts and graphs.   Purpose:   * Checking for prior knowledge |

**Virtual Manipulatives**

**Time**: ~6 minutes

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| **Create a Bar Graph**  <http://www.ixl.com/math/grade-3/create-bar-graphs>  This allows students to have some of the information on the graph, and then fill in the remaining parts. If they answer wrong they are given an opportunity to see an explanation. |
| **Data Picking**  <http://www.bbc.co.uk/education/mathsfile/shockwave/games/datapick.html>  This lets the students take a tally of 10 students. This tally chart is then made into a graph. The student can them choose the correct representation of that graph. |

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| **Activities**  Materials: Buttons, string, graph paper, index cards, attribute blocks, colored pencils/markers/crayons, ELMO, teacher station, whiteboard, dry erase markers  **Total Time:** 30 minutes | |
| 21.1 What about “Both” P. 442  Time: 6 minutes | Discuss attributes in order to get students prepared for all activities. Students will be asked to assist the teacher in sorting the attribute blocks into the correct groups. Circle one will have red and circle two will have triangles. The circles will not overlap at first, causing the students to think about what to do if they are both. |
| 21.2 Guess My Rule P. 442  Time: 5 minutes | The teacher will sort the students into groups by an attribute. The students must then try and figure out what attribute they have been sorted by. These groups will also serve as their work groups. |
| 21.3 Hidden Labels P. 442  Time: 7 minutes | Students will be given a bag with buttons, string, and index cards inside. They will then choose a leader for their group. The leader will begin with two circles that overlap to make a Venn diagram. Then they will choose two attributes and write one on each index card, not letting the others see. Then the others in the group will pick buttons and the leader will place them where they go according to the hidden labels. If a student thinks they know the labels they can try to place a button. This can be extended by adding a circle and another label. |
| Graphing with Collected Data P. 443-444  Time: 6 minutes | Each table will be given 20 multi-colored counting bears. They will then take a tally of their bears by color, and then create a bar graph. They will then be able to share their graphs, at which time the teacher will assess them. The teacher will show that this can also be done online at <http://nlvm.usu.edu/en/nav/frames_asid_323_g_2_t_5.html> |
| Steam-and-Leaf Plots P. 446  Time: 6 minutes | A steam-and-leaf plot will be created out of the ages of the students in our class. Each student will write their age on the whiteboard. Then as a class we will create a steam-and-leaf plot. |

**Lesson Plan**

<http://www.teacherspayteachers.com/Product/Tallies-Graphs-Collecting-Class-Data>

This is a lesson to be used at the conclusion of learning about graphs. The students use what they learn from their classmates to create tally charts and graphs. These tally charts and graphs are then made into a book. The teacher can use these books to assess the students understanding of graphs at the end of their learning. This show if the student is able to collect and record data independently.